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not related to the stickle-backs. Another new order, Mesichthyes, is proposed to include the Haplomi, Synentognathi and Percesoces. But while these groups are closely related, they differ almost as much among themselves as the Haplomi differ from some Isospondyli or the Percesoces from some Percomorphi. It is not clear that the Phthinobranchii really differ much from the Percesoces, especially since Mr. Starks has shown that the interclavicle, or infraclavicle, supposed to distinguish the former, is merely an expansion of the *hypocoracoid*, and that it is wanting in Macrorhamphosus, Centriscus and Aeoliscus among the Hemibranchs. The arrangement of these transitional fishes in distinct orders, or suborders, offers very great difficulties, because the groups, adopted though natural, are not set off by strong characters.

The Chætodonts, Labroids and Pomacentrids are placed first among Percomorphous fishes — for no evident reason, as the Berycidæ are more primitive in structure and earlier in time. Surely Chætodipterus does not belong to Chætodontidæ, nor Priscacara to the Pomacentridæ, nor Platax to the Carangidæ.

Erismatopterus, Amphiplaga, Asineops and Trichophanes are placed in the Aphredoderidæ. Near the Aphredoderidæ, would be safer. The suborder Pareioplitæ replaces the preoccupied name Loricati for the mailed-cheek fishes.

Dr. Hay has earned the lasting thanks of his brother ichthyologists for the pains he has taken in this work, and the portions treating of the groups higher than fishes will doubtless be found as carefully done and as helpful.

DAVID STARR JORDAN.

Notes. — Ikeda (*Journal of the College of Science*, Tokyo, Vol. XVII) has made an extended series of experiments to determine the mode of closure of the blastopore and the position of the embryonic body in amphibian eggs. He shows that the results obtained by puncturing eggs and by other similar methods can never be depended upon to reveal the normal course of development, for widely differing results are obtained depending upon the position of the puncture. He believes that the embryonic body in Amphibia may be formed at any position on the egg surface, and that many authors have overlooked or underestimated the varying rate at which different parts of the blastoporic lip enclose the yolk-mass, a rate which determines the final closing point of the blastopore and consequently the position of the embryo.

Kishinouye has recently published (*Jour. Col. Sci. Tokyo*, Vol. XVII) descriptions of five new species of Japanese Scyphomedusæ. All represent new genera and one a new family of the Stauromedusæ, Stenoscyphidæ.

The octopod genus Amphitretus has thus far been known only through a single specimen collected by the "Challenger" and described by Hoyle. A second specimen taken by the collector of the Missaki Marine Laboratory in the deep water of Sagarni Sea, Japan, in 1897, is now described by Ijima and Ikeda (*Annotationes Zoologicæ Japonenses*, Vol. IV). The animal, which was nearly half a foot long, was bell-shaped, semigelatinous and more or less transparent. The more important internal parts could be discerned through the outer gelatinous layer in which chromatophores were embedded. Unlike all other Cephalopods the mantle is fused with the siphon in the median plane so that there are two branchial openings into the branchial cavity. A colored figure of the appearance of this remarkable animal during life accompanies Ijima and Ikeda's description.

The osteology of the shoulder girdles of the hemibranchiate fishes is the subject of a paper by E. C. Starks in Vol. XXV of the *Proc. U. S. Nat. Mus.*

Brief accounts of the development and degeneration of the eyes in the blind fish, Amblyopsis, and of the structure of the degenerate eyes in the amphisbænian lizard, Rhineura, have been given by C. H. Eigenmann in the *Proc. Indiana Acad. Sci.* for 1901.

A summary of the questions concerning the propagation of the common eel forms the subject matter of an address by the President of the American Microscopical Society, C. H. Eigenmann. The address is published in the Transactions of the Society.

The increase of mesenteries in the madrepore corals has been studied by J. E. Duerden (*Ann. Mag. Nat. Hist.*, Ser. 7, Vol. X, August, 1902), who finds that in most polyps of the genus Madrepora only the six bilateral pairs of primary mesenteries are developed. In any colony a few large polyps may possess a greater number of mesenteries, in which case the new mesenteries are added as bilateral pairs at only the two axial extremities of the polyp, the enterocoels of the dorsal and ventral directives. The mesenterial increase is early associated with fission of the stomodæum and in the end probably with complete fission of the polyp in which half the mesenteries of each fission polyp are derived from the primary twelve of the original polyp and the other half are new formations.

The same author, (*Bull. Amer. Mus. Nat. Hist.*, Vol. XVI, pp. 323–332) calls attention to the great importance of boring algæ as a factor in the disintegration of corals. These grow most vigorously in quiet lagoons and thus contribute to the rapid decay of corals known to take place in such situations. They are, therefore, to be reckoned among the numerous elements concerned with the formation of coral islands.

The crustacean fauna of Nickajack Cave, Tennessee, has been investigated by W. P. Hay (*Proc. U. S. Nat. Mus.*, Vol. XXV, pp. 417–439). A new species of Cæcidotea, closely related to *C. nickajackensis* Packard, a new species of Gammarus, and two new subspecies of crayfishes are described.

Notes on the structure and development of a species of barnacle, *Dichelaspis mülleri*, found parasitic on the gills of crabs, have been published by R. E. Coker (*Bull. U. S. Fish Com. for 1901*, pp. 399–412).

BOTANY.

McIlvaine and Macadam's "American Fungi."[1] — A second edition of this book, which appeared first in 1900, has been brought out, and differs from the original edition in the addition of a supplement of twenty-five pages, including one full plate and several cuts. There is no equally full and fully illustrated book on the edible and poisonous fungi of this country, and though bulky and somewhat inconvenient for use, it is much lighter than the original issue and it ought to be in the hands of all who collect fungi for the table.

W. T.

Notes.— *Postelsia*, the new yearbook of the Minnesota Seaside Station, makes its appearance in a very attractive form, in the issue for 1901, recently distributed. This volume consists of seven chapters, or lectures, illustrated.

A new periodical, *Annales Mycologici*, under the editorship of H. Sydow and devoted to Fungi, is announced to appear at the opening of 1903, through the book house of R. Friedländer and Sohn, of Berlin.

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[1] McIlvaine, Charles, and Macadam, Robert K., *One Thousand American Fungi.* Revised edition. Indianapolis, The Bowen-Merrill Company, 1902. Quarto, xxxvii + 729 pp. Numerous plates, some of them in color, and line cuts. $5.00.